# Yurinsha Book News

*Documents mathematiques,*

459-004

*Vol. 6:* **Audin, M. (ed.):**
**Correspondance entre**
**Eenri Cartan et Andre Weil**
**(1928-1991)**

**The Cartan-Weil correspondence is a lively introduction to part of 20th century mathematics.**
**This book presents the correspondence, followed by 240 pages of notes and references, on the mathematical and political landscape. Readers will learn about, among other things, the birth and life of Bourbaki, the genesis, in jail, of Andre Weil's proof of the Riemann hypothesis on finite fields and the ferment of ideas on topology and on complex analysis which followed the invention of sheaf theory during the 1940s.**
**They will also observe the effects of the turmoils of the century (including the rise of fascism, World War II) on mathematicians and mathematics.**

**Table of Contents** *Introduction *Premieres lettres 1928-1933 *La guerre 1939-1945 *Strasbourg-Sao Paulo 1945-1947 *Paris-Chicago 1947-1958 *Apres 1958 *Notes sur la correspondance *Bibliographie *Index des personnes presentes sur les figures *Quelques-uns des sujets abordes dans ce livre *Index

**Oct. 2011** **720 pp.**
**9782856293140** **15,050.**

**The Societe Mathematique de France**

http://www.yurinsha.com
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No. 459 Sep. 2011

数理科学 友隣社 洋書専門

## *Proceedings of Symposia in Pure Mathematics,*

459-073

*Vol. 82:* Usher, M. (ed.):
**Low-Dimensional and Symplectic Topology**

Every eight years since 1961, the University of Georgia has hosted a major international topology conference aimed at disseminating important recent results and bringing together researchers at different stages of their careers. This volume contains the proceedings of the 2009 conference, which includes survey and research articles concerning such areas as knot theory, contact and symplectic topology, 3-manifold theory, geometric group theory, and equivariant topology.

Among other highlights of the volume, a survey article by Stefan Friedl and Stefano Vidussi provides an accessible treatment of their important proof of Taubes' conjecture on symplectic structures on the product of a 3-manifold and a circle, and an intriguing short article by Dennis Sullivan opens the door to the use of modern algebraic-topological techniques in the study of finite-dimensional models of famously difficult problems in fluid dynamics.

Nov. 2011 231 pp.
9780821852354 7,380.

## *IAS/Park City Mathematics Series,*

459-065

*Vol. 18:* Popescu, C. /Rubin, K. /Silverberg, A. (eds.):
**Arithmetic of L-Functions**

The overall theme of the 2009 IAS/PCMI Graduate Summer School was connections between special values of SL$-functions and arithmetic, especially the Birch and Swinnerton-Dyer Conjecture and Stark's Conjecture. These conjectures are introduced and discussed in depth, and progress made over the last 30 years is described.

This volume contains the written versions of the graduate courses delivered at the summer school.

It would be a suitable text for advanced graduate topics courses on the Birch and Swinnerton-Dyer Conjecture and/or Stark's Conjecture. The book will also serve as a reference volume for experts in the field.

Oct. 2011 501 pp.
9780821853207 10,160.

## *CRM Proceedings and Lecture Notes,*

459-029

*Vol. 53:* Hart, B. /Kucera, T. /
Pillay, A. /Scott, P. /Seely, R. (eds.):
**Models, Logics, and Higher-Dimensional Categories:**
**A Tribute to the Work of Mihaly Makkai**

This book deals with the main themes in Mihaly Makkai's research career: traditional model theory, categorical model theory and logics, and higher-dimensional category theory. Included are both research papers and survey papers, giving useful material for experts and students in these fields.

Particularly valuable are papers that show how the techniques and understanding in one field can be productively applied to another; examples are the paper by Harnik, which explains how Shelah's T^{eq} construction (in model theory) is the same as the categorical notion of pretopos completion; the paper by Kamensky, which gives category-theoretic treatments of sophisticated notions from stability theory; and the paper by Prest relating categorical logic and the model theory of modules.

Sep. 2011 426 pp.
9780821872819 15,730.

**A. M. S.**

*Contemporary Mathematics,*

*Vol. 553:* Agranovsky, M. /Ben-Artzi, M. /Galloway, G. / Karp, L. /Reich, S. /Shoikhet, D. / Weinstein, G. /Zalcman, L. (eds.): 459-077

## Complex Analysis and Dynamical Systems, IV: Part 1. Function Theory and Optimization

The papers in this volume cover a wide variety of topics in the geometric theory of functions of one and several complex variables, including univalent functions, conformal and quasiconformal mappings, and dynamics in infinite-dimensional spaces.
In addition, there are several articles dealing with various aspects of Lie groups, control theory, and optimization.
Taken together, the articles provide the reader with a panorama of activity in complex analysis and quasiconformal mappings, drawn by a number of leading figures in the field.
The companion volume (Contemporary Mathematics, Volume 554) is devoted to general relativity, geometry, and PDE.
This book is co-published with Bar-Ilan University (Ramat-Gan, Israel).

Oct. 2011 317 pp.
9780821851968 12,700.

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*Vol. 554:* Agranovsky, M. /Ben-Artzi, M. /Galloway, G. / Karp, L. /Reich, S. /Shoikhet, D. / Weinstein, G. /Zalcman, L. (eds.): 459-078

## Complex Analysis and Dynamical Systems, IV: Part 2. General Relativity, Geometry, and PDE

The papers in this volume cover a wide variety of topics in differential geometry, general relativity, and partial differential equations.
In addition, there are several articles dealing with various aspects of Lie groups and mathematics physics.
The companion volume (Contemporary Mathematics, Volume 553) is devoted to function theory and optimization.

Oct. 2011 284 pp.
9780821851975 11,980.

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*Vol. 552:* Sims, R. /Ueltschi, D. (eds.): 459-137

## Entropy and the Quantum II

The goal of the Entropy and the Quantum schools has been to introduce young researchers to some of the exciting current topics in mathematical physics.
These topics often involve analytic techniques that can easily be understood with a dose of physical intuition.
In March of 2010, four beautiful lectures were delivered on the campus of the University of Arizona.
They included Isoperimetric Inequalities for Eigenvalues of the Laplacian by Rafael Benguria, Universality of Wigner Random Matrices by Laszlo Erdos, Kinetic Theory and the Kac Master Equation by Michael Loss, and Localization in Disordered Media by Gunter Stolz.
Additionally, there were talks by other senior scientists and a number of interesting presentations by junior participants.
The range of the subjects and the enthusiasm of the young speakers are testimony to the great vitality of this field, and the lecture notes in this volume reflect well the diversity of this school.

Oct. 2011 224 pp.
9780821868980 9,560.

**A. M. S.**

*Courant Lecture Notes,*

*Vol. 22:* Hoppensteadt, F.: 459-110
**Mathematical Methods for Analysis of a Complex Disease**

Complex diseases involve most aspects of population biology, including genetics, demographics, epidemiology, and ecology.
Mathematical methods, including differential, difference, and integral equations, numerical analysis, and random processes, have been used effectively in all of these areas.
The aim of this book is to provide sufficient background in such mathematical and computational methods to enable the reader to better understand complex systems in biology, medicine, and the life sciences.
It introduces concepts in mathematics to study population phenomena with the goal of describing complicated aspects of a disease, such as malaria, involving several species.
The mathematical level is kept to essentially advanced undergraduate mathematics, and the results in the book are intended to provide readers with tools for performing more in-depth analysis of population phenomena.

Oct. 2011 149 pp.
9780821872864 3,750.

**A. M. S.**

Dragomir, S. /Perrone, D.: 459-161
**Harmonic Vector Fields: Variational Principles and Differential Geometry**

An excellent reference for anyone needing to examine properties of harmonic vector fields to help them solve research problems.
The book provides the main results of harmonic vector fields with an emphasis on Riemannian manifolds using past and existing problems to assist you in analyzing and furnishing your own conclusion for further research.
It emphasizes a combination of theoretical development with practical applications for a solid treatment of the subject useful to those new to research using differential geometric methods in extensive detail.

Nov. 2011 408 pp.
9780124158269 18,140.

**Academic**

*Progress in Mathematics,*

*Vol. 296:* Itenberg, I. /Joricke, B. /Passare, M. (eds.):
**Perspectives in Analysis, Geometry and Topology: On the Occasion of the 60th Birthday of Oleg Viro**

As a professor of Uppsala University, Viro has made invaluable contributions to Swedish research by complementing the country's longstanding tradition in analysis with his own renowned expertise in geometry and topology.
Consolidating in a single volume a major portion of the recent, impressive encounters among the fields of analysis, geometry, and topology would be too ambitious. 459-051
The topics presented by leading experts in their respective fields include: algebraic geometry, in particular, real algebraic geometry, differential geometry, symplectic and contact geometry, complex analysis, three- and four-dimensional manifolds, and invariants of links.

Dec. 2011 437 pp.
9780817682767 15,560.

**Birkhauser**

*Monographs on Statistics and Applied Probability*

**Basseville, M. /Nikiforov, I. /Tartakovsky, A.:** 459-189
**Sequential Analysis:**
**Hypothesis Testing and Change-Point Detction**

**This book presents an overview of the theory and applications of sequential methods for hypothesis testing and changepoint detection in a wide range of engineering and environmental domains.**
**It describes all the important theoretical developments with an emphasis on applications, including environmental surveillance, biomedical engineering, image processing, computer security, econometrics, and finance.**
**The text covers more practical discrete-time models as well as very general cases that include both continuous- and discrete-time models.**
**In addition, it presents the results for multi-hypothesis tests and detection-isolation procedures.**

June 2012 512 pp.
9781439838204 12,670.

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**van Houwelingen, H.:**
**Dynamic Prediction in Clinical Survival Analysis**

**In the last twenty years, dynamic prediction models have been extensively used to monitor patient prognosis in survival analysis.**
**Written by one of the pioneers in the area, this book synthesizes these developments in a unified framework.** 459-223
**It covers a range of models, including prognostic and dynamic prediction of survival using genomic data and time-dependent information.**
**The text includes numerous examples using real data that is taken from the authors's collaborative research.**
**R programs are provided for implementing the methods.**

Dec. 2011 248 pp.
9781439835333 11,480.

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**Mackenzie, G.:**
**Covariance Modelling** 459-208

**Written by a researcher at the forefront of the field, this book expounds on modern theory of covariance modelling in which regression models are used to model the covariance structure simultaneously with the mean.**
**In a systematic treatment, quite possibly the first available in a convenient format, the author then compares the results obtained to conventional methods and delineates why the new methodology is advantageous using a series of classical examples taken from the existing literature.**

July 2012 256 pp.
9781584886082 9,900.

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**Elashoff, R. /Ii, G. /Li, N.:** 459-201
**Joint Modeling of**
**Longitudinal and Time-to-Event Data**

Mar. 2012 352 pp.
9781439807828 11,480.

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**Zhang, B.:** 459-220
**Density Ratio Models:**
**Semiparametric Inference and Goodness-of-Fit Tests**

July 2012 320 pp.
9781439841044 12,670.

## CRC/Chapman & Hall

## *EMS Tracts in Mathematics,*

*Vol. 16:* **Jarnicki, M. /Pflug, P.:** 459-114

### Separately Analytic Functions

**The story of separately holomorphic functions began about 100 years ago. During the second half of the 19th century, it became known that a separately continuous function is not necessarily continuous as a function of all variables. At the beginning of the 20th century, the study of separately holomorphic functions started due to the fundamental work of Osgood and Hartogs. This book provides the first self-contained and complete presentation of the study of separately holomorphic functions, from its beginnings to current research. Most of the results presented have never been published before in book form.**

**Aug. 2011** **306 pp.**
**9783037190982** **10,030.**

## *EMS Series of Lectures in Mathematics,*

*Vol. 15:* **Carmeli, C. /Caston, L. /Fioresi, R.:** 459-096

### Mathematical Foundations of Supesymmetry

**The purpose of the book is to lay down the foundations of the subject, providing the reader with a comprehensive introduction to the language and techniques, as well as detailed proofs and many clarifying examples. This book is aimed ideally at second-year graduate students. After the first three introductory chapters, the text is divided into two parts: the theory of smooth supermanifolds and Lie supergroups, including the Frobenius theorem, and the theory of algebraic superschemes and supergroups. There are three appendices. The first introduces Lie superalgebras and representations of classical Lie superalgebras, the second collects some relevant facts on categories, sheafification of functors and commutative algebra, and the third explains the notion of Frechet space in the super context.**

**Aug. 2011** **300 pp.**
**9783037190975** **7,270.**

## *EMS Series of Congress Report*

*Vol. 4:* **Blath, J. /Imkeller, P. /Roelly, S. /(eds.):** 459-192

### Surveys in Stochastic Processes

**The 33rd Bernoulli Society Conference on Stochastic Processes and Their Applications was held in Berlin from July 27 to July 31, 2009. It brought together more than 600 researchers from 49 countries to discuss recent progress in the mathematical research related to stochastic processes, with applications ranging from biology to statistical mechanics, finance and climatology. This book collects survey articles highlighting new trends and focal points in the area written by plenary speakers of the conference, all of them outstanding international experts. A particular aim of this collection is to inspire young scientists to pursue research goals in the wide range of fields represented in this volume.**

**Aug. 2011** **260 pp.**
**9783037190722** **13,490.**

## *ESI Lectures in Mathematics and Physics*

*Vol. 8:* **Carey, A. (ed.):**
**Noncommutative Geometry and Physics:** Renormalisation, Motives, Index Theory
*Sep. 2012* *280 pp.* *9783037190081* *10,030.*

*Lecture Notes in Mathematics,*

459-050

*Vol. 2041:* Howard, B. /Yang, T.:
## Intersections of Hirzebruch-Zagier Divisors and CM Cycles

This monograph treats one case of a series of conjectures by S. Kudla, whose goal is to show that Fourier of Eisenstein series encode information about the Arakelov intersection theory of special cycles on Shimura varieties of orthogonal and unitary type.
Here, the Eisenstein series is a Hilbert modular form of weight one over a real quadratic field, the Shimura variety is a classical Hilbert modular surface, and the special cycles are complex multiplication points and the Hirzebruch-Zagier divisors.
By developing new techniques in deformation theory, the authors successfully compute the Arakelov intersection multiplicities of these divisors, and show that they agree with the Fourier coefficients of derivatives of Eisenstein series.

Nov. 2011 126 pp.
9783642239786 6,050.

459-131

*Vol. 2039:* Post, O.:
## Spectral Analysis on Graph-Like Spaces

Small-radius tubular structures have attracted considerable attention in the last few years, and are frequently used in different areas such as Mathematical Physics, Spectral Geometry and Global Analysis.
In this monograph, we analyse Laplace-like operators on thin tubular structures ("graph-like spaces"), and their natural limits on metric graphs. In particular, we explore norm resolvent convergence, convergence of the spectra and resonances.
Since the underlying spaces in the thin radius limit change, and become singular in the limit, we develop new tools such as -norm convergence of operators acting in different Hilbert spaces,
- an extension of the concept of boundary triples to partial differential operators, and -an abstract definition of resonances via boundary triples.

Nov. 2011 414 pp.
9783642238390 12,100.

459-106

*Vol. 2038:* Guedj, V. (ed.):
## Complex Monge -Ampere Equations and Geodesics in the Space of Kahler Metrics

The purpose of these lecture notes is to provide an introduction to the theory of complex Monge-Ampere operators (definition, regularity issues, geometric properties of solutions, approximation) on compact Kaehler manifolds. These operators are of central use in several fundamental problems of complex differential geometry (Kaehler-Einstein equation, uniqueness of constant scalar curvature metrics), complex analysis and dynamics.
The topics covered include, the Dirichlet problem, Monge-Ampere foliations and laminated currents, polynomial hulls and Perron envelopes with no analytic structure, a self-contained presentation of Krylov regularity results, a modernized proof of the Calabi-Yau theorem (after Yau and Kolodziej), an introduction to infinite dimensional riemannian geometry, geometric structures on spaces of Kaehler metrics (after Mabuchi, Semmes and Donaldson), generalizations of the regularity theory of Caffarelli-Kohn-Nirenberg-Spruck and Bergman approximation of geodesics.

Nov. 2011 318 pp.
9783642236686 12,100.

**Springer**

*Lecture Notes in Mathematics,*

*Vol. 2037:* **Nemethi, A. /Szilard, A.:** 459-063
**Milnor Fiber Boundary of**
**A Non -Isolated Surface Singularity**

**In the study of algebraic/analytic varieties a key aspect is the description of the invariants of their singularities. This book targets the challenging non-isolated case. Let f be a complex analytic hypersurface germ in three variables whose zero set has a 1-dimensional singular locus.**
**We develop an explicit procedure and algorithm that describe the boundary M of the Milnor fiber of f as an oriented plumbed 3-manifold.**
**This method also provides the characteristic polynomial of the algebraic monodromy.**
**We then determine the multiplicity system of the open book decomposition of M cut out by the argument of g for any complex analytic germ g such that the pair (f,g) is an ICIS. Moreover, the horizontal and vertical monodromies of the transversal type singularities associated with the singular locus of f and of the ICIS (f,g) are also described.**

Nov. 2011 236 pp.
9783642236464 7,780.

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*Vol. 2036:* **Mayer, V. /Urbanski, M. /Skorulski, B.:**
**Distance Expanding Random Mappings,**
**Thermodynamical Formalism,** 459-124
**Gibbs Measures and Fractal Geometry**

**In this manuscript we introduce measurable expanding random dynamical systems, develop the thermodynamical formalism and establish, in particular, the exponential decay of correlations and analyticity of the expected pressure although the spectral gap property does not hold.**
**This theory is then used to investigate fractal properties of conformal random systems. We prove a Bowen's formula and develop the multifractal formalism of the Gibbs states.**
**Depending on the behavior of the Birkhoff sums of the pressure function we arrive at a natural classification of the systems into two classes: quasi-deterministic systems, which share manyproperties of deterministic ones; and essentially random systems, which are rather generic and never bi-Lipschitz equivalent to deterministic systems.**

Nov. 2011 110 pp.
9783642236495 6,050.

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*Vol. 2028:* **Bianchini, S. /Carlen, E. /Mielke, A. /Villani, C.:**
**Nonlinear PDE's and Applications:**
**C.I.M.E. Summer School, Cetraro, Italy 2008,**
**Editors: Luigi Ambrosio, Giuseppe Savare**

**It consists of four series of lectures, delivered by Stefano Bianchini,** 459-085
**Eric A. Carlen, Alexander Mielke, and Cedric Villani.**
**They presented a broad overview of far-reaching findings and exciting new developments concerning, in particular, optimal transport theory, non-linear evolution equations, functional inequalities, and differential geometry. A sampling of the main topics considered here includes optimal transport, Hamilton-Jacobi equations, Riemannian geometry, and their links with sharp geometric/functional inequalities, variational methods for studying nonlinear evolution equations and their scaling properties, and the metric/energetic theory of gradient flows and of rate-independent evolution problems.**

July 2011 224 pp.
9783642217180 7,780.

**Springer**

*Universitext*

**Carrell, J.: A Group Theoretic Approach to Abstract Linear Algebra** 459-040

Abstract Linear Algebra, Groups and Rings is an excellent introduction to the theory of groups, rings and fields.
To emphasize the importance of a foundation of knowledge in both geometry and algebra, this text includes an introduction to Euclidean Spaces, and a brief treatment of algebraic topics such as matrix algebra, linear systems, vector spaces, linear coding theory, determinants, eigentheory, group theory, ring theory, and field extensions, even covering an introduction to cryptography.

Apr. 2012 470 pp.
9780387794273 7,990.

**Zhang, F.: Matrix Theory: Basic Results and Techniques, 2nd ed.** 459-076

The aim of this book is to concisely present fundamental ideas, results, and techniques in linear algebra and mainly matrix theory.
The book contains ten chapters covering various topics ranging from similarity and special types of matrices to Schur complements and matrix normality.

Oct. 2011 399 pp.
9781461410980 10,370.

*Springer Proceedings in Mathematics,*

***Vol. 17:* Bar, C. /Lohkamp, J. /Schwarz, M. (eds.): Global Differential Geometry** 459-153

This volume contains a collection of well-written surveys provided by experts in Global Differential Geometry to give an overview over recent developments in Riemannian Geometry, Geometric Analysis and Symplectic Geometry.
The papers are written for graduate students and researchers with a general interest in geometry, who want to get acquainted with the current trends in these central fields of modern mathematics.

Nov. 2011 500 pp.
9783642228414 19,020.

***Vol. 11:* Deuschel, J.-D. /Gentz, B. / Konig, W. /Schmock, U. (eds.): Probability in Complex Physical Systems: In Honour of Erwin Bolthausen and Jurgen Gartner** 459-200

This volume collects twenty articles on various topics in this field, including self-interacting random walks and polymer models in random and non-random environments, branching processes, Parisi formulas and metastability in spin glasses, and hydrodynamic limits for gradient Gibbs models.

Nov. 2011 465 pp.
9783642238109 19,020.

***Vol. 7:* Zili, M. /Filatova, D. (eds.): Stochastic Differential Equations and Processes: SAAP, Tunisia, 2010** 459-148

The study of such topic is motivated in part by the need to model, understand, forecast and control the behavior of many natural phenomena that evolve in time in a random way. Such phenomena appear in the fields of finance, telecommunications, economics, biology, demography, physics, chemistry, signal processing and modern control theory, to mention just a few.

Nov. 2011 252 pp.
9783642223679 15,560.

**Springer**

## *Springer Monographs in Mathematics*

**Halbeisen, L.:** 459-028

### Combinatorial Set Theory

**The first part offers an overview of classical set theory wherein the focus lies on the axiom of choice and Ramsey theory.**
**In the second part, the sophisticated technique of forcing, originally developed by Paul Cohen, is explained in great detail.**
**With this technique, one can show that certain statements, like the continuum hypothesis, are neither provable nor disprovable from the axioms of set theory.**
**In the last part, some topics of classical set theory are revisited and further developed in the light of forcing.**

**Nov. 2011** **474 pp.**
**9781447121725** **10,370.**

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**Janno, J. /Engelbrecht, J.:**

### Microstructured Materials 459-113

**Complex, microstructured materials are widely used in industry and technology and include alloys, ceramics and composites.**
**Focusing on non-destructive evaluation (NDE), this book explores in detail the mathematical modeling and inverse problems encountered when using ultrasound to investigate heterogeneous microstructured materials.**
**The outstanding features of the text are firstly, a clear description of both linear and nonlinear mathematical models derived for modelling the propagation of ultrasonic deformation waves, and secondly, the provision of solutions to the corresponding inverse problems that determine the physical parameters of the models.**

**Sep. 2011** **162 pp.**
**9783642215834** **13,830.**

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**Chudvovsky, D.:** 459-230

### Hypergeometric Function Identities and Their Applications

**Table of contents:** * Preface * Introduction by R. Askey * Hypergeometric and generalized hypergeometric functions in one and many variables * Classical hypergeometric function identities - functional theoretic and combinatorial interpretation. q-basic series * Evaluation of hypergeometric functions at special values - \Gamma - factors and period relations * Reducible cases of hypergeometric equations * Applications of the Lagrange inversion formula * Pade approximations to hypergeometric functions as hypergeometric polynomials * Special hypergeometric functions - polylogarithms and other functions * Diophantine approximations and measures of irrationality * Hypergeometric function evaluation and calculation - physics and applied mathematics * Appendix by W. Gosper. Hypergeometric identities

**Jan. 2012** **250 pp.**
**9780387986487** **13,830.**

## *Applied Mathematical Sciences,*

***Vol. 156:*** **Kielhofer, H.:** 459-120

### Bifurcation Theory:

**An Introduction with Applications to Partial Differential Equations, 2nd ed.**
**This book gives a unified presentation in an abstract setting of the main theorems in bifurcation theory, as well as more recent and lesser known results. It covers both the local and global theory of one-parameter bifurcations for operators acting in infinite-dimensional Banach spaces, and shows how to apply the theory to problems involving partial differential equations.**

**Nov. 2011** **404 pp.**
**9781461405016** **10,370.**

## Springer

*Stochastic Modeling and Applied Probability,*

*Vol. 67:* **Jacod, J. /Protter, P.:** 459-204

**Discretization of Processes**

**This book establishes the theory of how to go about estimating not just scalar parameters about a proposed model, but also the underlying structure of the model itself.**
**Classic statistical tools are used: the law of large numbers, and the central limit theorem.**
**Researchers have recently developed creative and original methods to use these tools in sophisticated (but highly technical) ways to reveal new details about the underlying structure.**

**Dec. 2011** **590 pp.**
**9783642241260** **15,560.**

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*Vol. 66:* **Khasminskii, R.:** (Originally published in Russian, by Nauka, 1969)

**Stochastic Stability of Differential Equations, 2nd ed.** 459-119

**Since the publication of the first edition of the present volume in 1980, the stochastic stability of differential equations has become a very popular subject of research in mathematics and engineering.**
**To date exact formulas for the Lyapunov exponent, the criteria for the moment and almost sure stability, and for the existence of stationary and periodic solutions of stochastic differential equations have been widely used in the literature.**
**In this updated volume readers will find important new results on the moment Lyapunov exponent, stability index and some other fields, obtained after publication of the first edition, and a significantly expanded bibliography.**

**Aug. 2011** **330 pp.**
**9783642232794** **15,560.**

*Theoretical and Mathematical Physics*

**Unterberger, J. /Roger, C.:** 459-072

**The Schrodinger-Virasoro Algebra:**
**Mathematical structure & ynamical Schrodinger symmetries**

**This monograph provides the first up-to-date and self-contained presentation of a recently discovered mathematical structure --- the Schrodinger-Virasoro algebra. Just as Poincare invariance or conformal invariance play a key role in understanding, respectively, elementary particles and two-dimensional equilibrium statistical physics, this algebra of non-relativistic conformal symmetries may be expected to apply itself naturally to the study of some models of non-equilibrium statistical physics, or more specifically in the context of recent developments related to the non-relativistic AdS/CFT correspondence.**

**Sep. 2011** **250 pp.**
**9783642227165** **13,830.**

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**Du, D.-Z. /Graham, R. /Pardalos, P. (eds.):** 459-010

**Handbook of Combinatorial Optimization, 2nd ed.**

**The editors have brought together almost every aspect of this enormous field of combinatorial optimization, an area of research at the intersection of applied mathematics, computer science, and operations research and which overlaps with many other areas such as computation complexity, computational biology, VLSI design, communications networks, and management science.**

**Apr. 2012** **4930 pp.**
**9781441979964** **432,500.**

**Springer**

**Deza, M. /Deza, E.:** 459-042

## Figurate Numbers

**Figurate numbers have a rich history with many applications.
The main purpose of this book is to provide a thorough and complete presentation of the theory of figurate numbers, giving much of their properties, facts and theorems with full proofs.
This book is the first of this topic in unified systematic way.
It also contains many exercises with solutions.**

**Sep. 2011** **300 pp.**
**9789814355483** **11,860.**

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**Adachi Toshiaki /Hashimoto Hideya /Hristov, M. (eds.):**

## Recent Progress in Differential Geometry and Its Related Fields:

### Proceedings of the 2nd Int'l Colloquium on Differential Geometry and Its Rela 459-149

**These contributions from active specialists in differential geometry provide significant information for research which cover geometric structures, concrete Lie group theory and information geometry.
This volume is invaluable not only for researchers in this special area but also for those who are interested in interdisciplinary areas in differential geometry, complex analysis, probability theory and mathematical physics.
It also serves as a good guide to graduate students in the field of differential geometry.**

**Sep. 2011** **200 pp.**
**9789814355469** **9,680.**

*Lecture Notes Series, Insititute for Mathematical Sciences, National University of Singapore,*

***Vol. 22:* Bao, W. /Du, Q. (eds.):** 459-224

## Multiscale Modeling and Analysis for Material Simulation

**This invaluable volume collects four expanded lecture notes with self-contained tutorials.
They cover a number of aspects on multiscale modeling, analysis and simulations for problems arising from materials science including some critical components in computational prediction of materials properties such as the multiscale properties of complex materials, properties of defects, interfaces and material microstructures under different conditions, critical issues in developing efficient numerical methods and analytic frameworks for complex and multiscale materials models.**

**Sep. 2011** **280 pp.**
**9789814360890** **10,890.**

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**Walecka, J.:** 459-218/219

## Introduction to Statistical Mechanics

**The science of statistical mechanics is concerned with defining the thermodynamic properties of a macroscopic sample in terms of the properties of the microscopic systems of which it is composed.
The aim of this book is to provide a clear, logical, and self-contained treatment of equilibrium statistical mechanics starting from Boltzmann's two statistical assumptions, and to present a wide variety of applications to diverse physical assemblies. The coverage is enhanced and extended through an extensive set of accessible problems.**

**Aug. 2011** **400 pp.**
**9789814366205/9789814366212** **11,860./7,020.** (Paper ed.)

## World Scientific Pub.

## *Seminaires et Congres,*

*Vol. 21:* Rodier, F. /Vladut, S. (eds.): 459-067
**Arithmetics, Geometry, and Coding Theory**

The Conference on Arithmetics, Geometry, and Coding Theory was held at the International Center of Mathematical Meetings of Luminy (CIRM) in Marseilles from September 26-30, 2005.
The conference focused on the interaction between number theory and algebraic geometry and the interaction between coding theory and cryptography.
It addressed such subjects as curves covered by the Hermitian curve, towers of function fields, bilinear complexity of the multiplication in the finite fields, codes on various varieties, estimate of the Picard number of surfaces via p-adic cohomology, minimal distance of codes on a surface, and the Euler-Kronecker constant on global fields.

Sep. 2011 225 pp.
9782856292792 10,030.

*Vol. 20:* Lacroix, Y. /Liardet, P. /Thouvenot, J.-P. (eds.):
**Ecole de Theorie Ergodique (2006)**

This volume, which contains a selection of papers that were presented at the School in Ergodic Theory, CIRM (Marseille, France) during April 2006, explores several themes. 459-057
Dynamical properties of interval maps are studied in case of unimodal transformations and piecewise monotonic maps, but also for generalized \beta-shift and some Gibbs properties related to the Erdos measure, linked to the Golden Number, are investigated.
In geometry, combinatorial and ergodic properties of geodesic flows are studied through a coding of such a flow on an hyperbolic surface, and an original approach of the unique ergodicity property of the directional flow on a surface translation (KMS theorem) is provided.

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9782856293126 10,030.

## *Memoires de la Societe Mathematique de France,*

*Numero 124:* Henniart, G. /Lemaire, B.: 459-047
**Changement de Base et Induction Automorphe Pour \mathrm{GL}_n en Caracteristique non Nulle**

Let E/F be a finite cyclic extension of local or global fields, of degree d. The theory of base change from {\rm GL}_n(F) to {\rm GL}_n(E) and the theory of automorphic induction from {\rm GL}_m(E) to {\rm GL}_{md} (F) are two instances of Langlands' functoriality principle: when F is local, they correspond respectively to restriction to E of representations of the Weil-Deligne group of F, and induction to F of representations of the Weil-Deligne group of E.
If F is a finite extension of a p-adic field \mathbb {Q}_p, these theories were established long ago (Arthur-Clozel, Henniart-Herb).
In this memoir the authors extend them to the case where F is a non-Archimedean locally compact field of positive characteristic.
They also prove, for a global functions field F, that these two local theories are compatible with the global maps of base change and automorphic induction deduced, via the Langlands correspondence proved by Lafforgue, from restriction and induction of global Galois representations.

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9782856293119 7,610.

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